

MONTANA ONLINE PAYMENT PORTAL (OPP) INTEGRATION

SETUP

SITSD will configure the Merchant account, OPP tenant, and the API key for each Entity (Agency, City, or County). The Entity will be responsible for supplying custom HTML and CSS for page styling. Styling is limited to custom page headers and footers (images are allowed) and what can be accomplished via CSS. Template HTML and CSS can be provided for Entities to use to build styles and HTML. If no styling, header, or footer are provided defaults will be applied to the tenant pages.

Entities will be responsible for making necessary application changes to initiate a Sale with the OPP, send users to OPP for payment processing, and collect the sale status and display that to the user upon completion.

LINKS

- Tenant Root URL's
 - Test – https://test.svc.mt.gov/doa/opp/{tenant_name}
 - Production – https://svc.mt.gov/doa/opp/{tenant_name}
- Swagger URL – <https://test.svc.mt.gov/doa/opp/swagger>
 - Swagger only exists in the Test environment

APPLICATION INTEGRATION

Payment processing can be viewed as a three-step process for Entities.

1. Submit Sale details to the OPP through the API.
2. Send the customer to the OPP to process the payment.
3. Retrieve the Sale status from OPP and inform customer of status.

STEP 1 - SUBMITTING THE SALE

The Sale prepares OPP for processing customer payments on behalf of the Entity application. Submitting the sale is done via a POST call using the root URL with **/api/v1/Sale** added to the URL and requires the tenant API key as a parameter, e.g., <https://test.svc.mt.gov/doa/opp/mytenant/api/v1/Sale?apiKey={myApiKey}>.

For State Agencies using the Treasury, the product SKU's must match a specific format to be properly processed through SABHRS (if applicable). See [Product SKU Definition](#)

SALE REQUEST JSON STRUCTURE

```

{
  "paymentType": "CreditCard",
  "redirectBackUrl": "string",
  "merchantDefinedField1": "string",
  "merchantDefinedField2": "string",
  "merchantDefinedField3": "string",
  "merchantDefinedField4": "string",
  "merchantDefinedField5": "string",
  "merchantDefinedField6": "string",
  "merchantDefinedField7": "string",
  "merchantDefinedField8": "string",
  "merchantDefinedField9": "string",
  "merchantDefinedField10": "string",
  "merchantDefinedField11": "string",
  "merchantDefinedField12": "string",
  "merchantDefinedField13": "string",
  "merchantDefinedField14": "string",
  "merchantDefinedField15": "string",
  "merchantDefinedField16": "string",
  "merchantDefinedField17": "string",
  "merchantDefinedField18": "string",
  "merchantDefinedField19": "string",
  "merchantDefinedField20": "string",
  "orderDescription": "string",
  "billingDetail": {
    "firstName": "string",
    "lastName": "string",
    "address1": "string",
    "address2": "string",
    "city": "string",
    "stateCode": "string",
    "postalCode": "string",
    "countryCode": "string",
    "phone": "string",
    "email": "string"
  },
  "shippingDetail": {
    "firstName": "string",
    "lastName": "string",
    "address1": "string",
    "address2": "string",
    "city": "string",
    "stateCode": "string",
    "postalCode": "string",
    "countryCode": "string",
    "phone": "string",
    "email": "string",
    "company": "string",
    "fax": "string"
  },
  "products": [
    {
      "sku": "string",
      "description": "string",
      "itemPrice": 0,
      "quantity": 0
    }
  ]
}

```

SALE RESPONSE JSON STRUCTURE

```
{  
  "token": "string",  
  "url": "string"  
}
```

SALE REQUEST EXPLANATION

Field	Required	Description
paymentType	Yes	Enum value of either CreditCard or ACH
redirectBackUrl	Yes	Once the payment has been processed by OPP, the customer will be sent to this URL for the initiating application to process the payment outcome.
merchantdefinedfield? (1 through 20)	No	Up to twenty custom values to be collected with the sale. These values can be shown or hidden from users in the OPP during checkout. Please coordinate with SITSD to properly map these to your products/items so display names and receipts are correct.
orderDescription	No	Optional description of the order. This will not show to users or in reports.
billingDetail	No	Contains billing information to pre-populate for the user. See Billing Detail Explanation
shippingDetail	No	Contains shipping information to pre-populate for the user. See Shipping Detail Explanation
products	Yes	Contains a collection of products that customer is purchasing. See Product Explanation

BILLING DETAIL EXPLANATION

Field	Required	Description
firstName	No	Customer first name
lastName	No	Customer last name
address1	No	Customer address line one
address2	No	Customer address line two
city	No	Customer city
stateCode	No	Customer two-character state code, e.g. MT
postalCode	No	Customer postal code
countryCode	No	Customer two-character country code, e.g. US
phone	No	Customer phone number
email	No	Customer email address (Receipts will be sent to this email address by default)

SHIPPING DETAIL EXPLANATION

Field	Required	Description
firstName	No	Shipping first name
lastName	No	Shipping last name

address1	No	Shipping address line one
address2	No	Shipping address line two
city	No	Shipping city
stateCode	No	Shipping two-character state code, e.g. MT
postalCode	No	Shipping postal code
countryCode	No	Shipping two-character country code, e.g. US
phone	No	Shipping contact number
email	No	Shipping contact email address
company	No	Shipping company (the company the item is being shipped to)
fax	No	Shipping contact fax number

PRODUCT EXPLANATION

Field	Required	Description
sku	Yes	Product SKU. For State agencies using the Treasury, this must match a specific format. See Product SKU Definition
description	Yes	A short description of the product
itemPrice	Yes	The cost of one individual item.
quantity	Yes	The total count of this product being purchased

SALE RESPONSE EXPLANATION

Field	Description
token	A unique identifier for the submitted sale
url	The URL to send the customer to for payment processing.

STEP 2 – CUSTOMER PAYMENT

Once the sale has been submitted to the OPP, a response is sent back containing a token and URL. The token is to be used by the Entity application to retrieve the sale status during Step 3 or at any point after the sale has been created to retrieve the status of the sale. **The URL is the location the Entity application needs to send the customer to complete the payment.**

Once the application forwards the customer to the Online Payment Portal, they will be allowed to enter their billing information then proceed to the payment screen. The payment screen displays the appropriate fields according to the payment type provided in the Step 1 Sale request. Once the payment information is completed, the transaction is finalized and the customer is forwarded back to the Entity application where they can view the status of the response (Step 3).

STEP 3 – SALE STATUS

Upon completion of the sale, the OPP will send the user back to the **redirectBackUrl** supplied with the sale request in Step 1. From here the application will need to query the status of the sale using the token that was stored from Step 1 and decide how to handle the payment status.

Like step 1, the API call will go **/api/v1/Sale** with a required tenant API key but will use the HTTP GET verb and must include the token stored from Step 1, e.g.,

<https://test.svc.mt.gov/doa/opp/mytenant/api/v1/Sale?apiKey={myApiKey}&token={mySaleToken}>.

SALE STATUS RESPONSE JSON

```

{
  "token": "string",
  "status": "Pending",
  "statusMessage": "string",
  "transactionId": "string",
  "totalAmountCharged": 0,
  "paymentType": "CreditCard",
  "orderDescription": "string",
  "merchantDefinedField1": "string",
  "merchantDefinedField2": "string",
  "merchantDefinedField3": "string",
  "merchantDefinedField4": "string",
  "merchantDefinedField5": "string",
  "merchantDefinedField6": "string",
  "merchantDefinedField7": "string",
  "merchantDefinedField8": "string",
  "merchantDefinedField9": "string",
  "merchantDefinedField10": "string",
  "merchantDefinedField11": "string",
  "merchantDefinedField12": "string",
  "merchantDefinedField13": "string",
  "merchantDefinedField14": "string",
  "merchantDefinedField15": "string",
  "merchantDefinedField16": "string",
  "merchantDefinedField17": "string",
  "merchantDefinedField18": "string",
  "merchantDefinedField19": "string",
  "merchantDefinedField20": "string",
  "billingInformation": {
    "firstName": "string",
    "lastName": "string",
    "address1": "string",
    "address2": "string",
    "city": "string",
    "stateCode": "string",
    "postalCode": "string",
    "countryCode": "string",
    "phone": "string",
    "email": "string",
    "company": "string",
    "fax": "string"
  },
  "shippingInformation": {
    "firstName": "string",
    "lastName": "string",
    "address1": "string",
    "address2": "string",
    "city": "string",
    "stateCode": "string",
    "postalCode": "string",
    "countryCode": "string",
    "phone": "string",
    "email": "string",
    "company": "string",
    "fax": "string"
  },
  "productsSold": [
    {
      "sku": "string",
      "description": "string",
      "quantitySold": 0,

```

SALE STATUS RESPONSE EXPLANATION

Field	Description
token	The original sale token provided in step one
status	Status of the sale: <ul style="list-style-type: none"> • Pending – A sale record has been created but PayZang has not collected payment information yet. • Approved – Payment approved by PayZang. This does not mean that a charge has already occurred. • Declined – Payment declined by PayZang. • Error – Payment error, see statusMessage for reasons. • Cancelled – Payment cancelled by customer.
statusMessage	The message associated to the status. Error and Declined status messages are variable depending on the issue PayZang reports.
transactionId	The PayZang transaction ID. A transaction id is created before payment is collected. Do not rely on this to determine if the payment has processed.
totalAmountCharged	The total amount charged to the customer. This value will only be filled in when a transaction has been completed.
paymentType	The payment type used by the customer, either ACH or Credit Card.
orderDescription	The order description originally given to this transaction by your system
merchantDefinedField? (1-20)	The value of the merchant defined fields that were submitted to PayZang.
billingInformation	The final billing information used by PayZang. See Billing Information Response Explanation
shippingInformation	The final shipping information used by PayZang. See Shipping Information Response Explanation
productsSold	The final list of products used by PayZang. See Product Sold Item Explanation

BILLING INFORMATION ITEM EXPLANATION

Field	Description
firstName	The billing first name PayZang used.
lastName	The billing last name PayZang used.
address1	The billing address PayZang used.
address2	The billing address additional PayZang used.
city	The billing city PayZang used.
stateCode	The billing state PayZang used.
postalCode	The billing postal code PayZang used.
countryCode	The billing country code PayZang used.
phone	The billing phone number PayZang used.
email	The billing email address PayZang used.
company	The billing company PayZang used.

fax	The billing fax PayZang used.
------------	-------------------------------

SHIPPING INFORMATION ITEM EXPLANATION

Field	Description
firstName	The shipping first name PayZang used.
lastName	The shipping last name PayZang used.
address1	The shipping address PayZang used.
address2	The shipping address additional PayZang used.
city	The shipping city PayZang used.
stateCode	The shipping state PayZang used.
postalCode	The shipping postal code PayZang used.
countryCode	The shipping country code PayZang used.
phone	The shipping phone number PayZang used.
email	The shipping email address PayZang used.
company	The shipping company PayZang used.
fax	The shipping fax PayZang used.

PRODUCT SOLD ITEM EXPLANATION

Field	Description
sku	The SKU submitted to and used by PayZang for this product
description	The product description submitted to and used by PayZang for this product
quantitySold	The number of times this product was charged to the customer.
itemCost	The cost of one item of this product

WEBHOOKS

SITSD can enable any Tenant to send webhook events to a URL(s) you designate. There are three events:

- **Success** – All the sale information has been submitted to PayZang by the customer.
- **Error** – PayZang has reported an error during input of data or declined the payment
- **Cancel** – The customer has canceled the payment process.

Every event will send the same [Sale Status Response JSON](#) used during the [Step 3 – Sale Status](#) call.

API KEYS

OPP Webhooks support sending an API Key in the header of the request to the consumer. The header key is **x-api-key**. If you wish to have an API Key sent with each of your webhook calls, please provide that key to SITSD when setting up your Webhook(s)

SIGNATURE

Every webhook request is signed using HMAC (Hash based Message Authentication Code) and a generated secret key. This should be used to verify the authenticity of the request payload. Additionally, you can use the timestamp to prevent duplicate messages from being processed. SITSD can provide the secret used for verifying the payload.

The **x-opp-webhook-signature** header value contains the message timestamp and the signature, e.g.

```
x-opp-webhook-signature
t:1614635935,s:97653a056a2cd0f7aebb6e8401329a508287e52bca03a50ca5883fd371ef087a
```

- **T** – Is the Unix time (in seconds) that the event occurred.
- **S** – Is the result of the HMAC in hex code.

VERIFICATION

1. Make sure that the payload is UTF8 encoded.
2. Append the timestamp to the end of the request payload (do not alter the payload before doing this)
3. Generate an HMAC signature with the payload and the secret using a SHA-256 algorithm.
4. Get the hex value from the HMAC output.
5. Compare the signature in the header with your output. If they match, then the request is valid.

C# EXAMPLE

```
public static string GenerateHex(string payload, string timestamp, string secret)
{
    var encoding = new UTF8Encoding();
    var payloadBytes = encoding.GetBytes(payload + timestamp);
    var secretBytes = encoding.GetBytes(secret);
    byte[] hashBytes;
    using (HMACSHA256 hash = new HMACSHA256(secretBytes))
        hashBytes = hash.ComputeHash(payloadBytes);

    return BitConverter.ToString(hashBytes).Replace("-", "").ToLower();
}
```

JAVA EXAMPLE

```

public static String generateHex(String payload, String timestamp,
    String secret) throws Exception {
    byte[] payloadBytes = payload.concat(timestamp).getBytes("UTF-8");
    SecretKeySpec secretSpec =
        new SecretKeySpec(secret.getBytes("UTF8"), "HmacSHA256");

    Mac hmac = Mac.getInstance("HmacSHA256");
    hmac.init(secretSpec);
    byte[] hashBytes = hmac.doFinal(payloadBytes);

    StringBuilder result = new StringBuilder();
    for (byte hashByte : hashBytes){
        result.append(String.format("%02x", hashByte));
    }

    return result.toString();
}

```

TROUBLESHOOTING

I'M GETTING A 404

- Check your tenant name is correct in the URL.
- Accessing the Cart page will return a 404 if the tenant is not setup use the cart page. Please contact SITSD if you need to use the cart page with your application.
- Access the cart page, for custom applications, requires a valid token id.

I'M GETTING A 401

- Make sure your API Key is correct.
- Make sure your API Key is being URL encoded.

HANDLING FAILED TRANSACTION

When PayZang declines a transaction or fails one due to error, that transaction cannot be recovered or reattempted. A new transaction must be started.

The OPP will display a status message to the user when a transaction has failed with an option to Return Home. For custom applications, the Return Home button will send the user to the defined **redirectBackUrl** in the Step 1 request. The custom application will be responsible for querying the Sale API to determine star.

BUNDLED PRODUCTS/ITEMS

The OPP supports bundling multiple products into one item. When these products are bundled, the user only sees a single item and price on the cart page and the generated receipt.

When a bundle passes through the OPP, it is unwrapped, and the total amount is allocated to the items that make up that bundle. Allocation occurs in one of two ways:

- **Fixed Price** – The price of the bundle is the sum of the price of each item and, when unwrapped, is split according to that fixed price for each item.
- **Variable Price** – The price of the bundle is defined by the user or a variable amount. When the bundle is unwrapped, the cost is distributed to the items based on a distribution percentage, e.g., 25% of the bundle total is allocated to item A and 75% allocated to item B.

Custom applications that wish to use bundled products will need to supply the product information to SITSD, including the fixed amount or distribution percentages. SITSD will create the bundle mapping for your tenant in the OPP and provide you a SKU to use when submitting a product in the Sale Post API. The SKU will uniquely identify the submitted product as a bundle needing to be unwrapped.

PRODUCT SKU DEFINITION

STATE AGENCIES

Every item being sold must have a SKU with at least the Item Unique Identifier. SKU's may be formatted to include SABHRS coding if PayZang is creating the deposit file for the money deposited to the State Treasury account in US Bank. Each field defined below will be separated by a pipe (|) even if that particular field is not being used. If PayZang is creating the SABHRS deposit file, the Account, and Fund are required fields. If the Organization, Subclassification, Program, Project Grant, and Chartfields 1-3 are not needed, they should be left empty. Please note that the deposit file is for a specific Business Unit. The length of the entire SKU cannot exceed 128 characters.

The following format will be used:

Item Unique Identifier|Account|Fund|Organization|Subclassification|Program|Project Grant|Chartfield1|Chartfield2|Chartfield3

Example 1:

ABC12345|68199|118216|21010A|588N4|2021|ABC-123-4567|111|222|333|5677y

- ABC12345: Item Unique Identifier*
- 68199: Account*
- 118216: Fund*
- 21010: Organization
- 588N4: Subclassification
- 2021: Program
- ABC-123-4567: Project/Grant
- 111: Chartfield1
- 222: Chartfield2
- 333: Chartfield3
- 5677y: Open Item Key (needed for open item accounts)

*Denotes Required field

Example 2:

ABC12345|68199|118216|||||

ABC12345: Item Unique Identifier*

68199: Account*

118216: Fund*

*Denotes Required field

Item Unique Identifier: This field is used to uniquely identify the item or service being provided from other items the customer can purchase. Agencies can make up this field if there is not an already existing alphanumeric code that is uniquely tied to the item or service. Agencies are encouraged to use words (spaces are fine but no dashes or pipes) such as the description of the item that help identify what was sold for reporting purposes. Do not use more than 50 characters per identifier.

Custom Applications: Many state systems create SABHRS deposit records, if that is the case, only the Item Unique Identifier must be sent with the transaction.

UNIVERSITY ENTITIES AND POLITICAL SUBDIVISIONS

Every item being sold must have a SKU with at least an Item Unique Identifier.

Item Unique Identifier: This field is used to uniquely identify the item or service being provided from other items the customer can purchase. Entities can make up this field if there is not an already existing alphanumeric code that is uniquely tied to the item or service. Entities are encouraged to use words (spaces are fine but no dashes or pipes) such as the description of the item that help identify what was sold for reporting purposes. Do not use more than 50 characters per identifier.

Additional Coding Available: Entities can also use up to nine more fields to identify the item if it is helpful for accounting purposes; each field is separated by a pipe. For example, the second field could be the department providing the item. You may also want to use fields from your accounting system. These fields are provided for reporting purposes.

Example:

Item Unique Identifier|Department|Section|Account Code|Unit Code|Any Other Code